

USSR

UDC: 535.89

GOLUBEV, Ye. M., OGURTSOVA, N. N., PODMOSHENSKIY, I. V., ROGOVTSEV, I. N.,  
Leningrad

"Experimental Investigation of the Instability of a High-Current Dis-  
charge in an Open Tube"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 4, Jul/Aug 72, pp  
724-727

Abstract: The authors study the instability of a high-current discharge with vaporizable wall in tubes 50 mm in diameter and 100-400 mm long open to the atmosphere at both ends. A capacitor bank was used to produce a current pulse of 100-250 kA with a duration of 200  $\mu$ s. High-speed motion picture photography was used to investigate the space-time development of the discharge. The voltage gradient of the electric field in the plasma column was oscillographically measured by means of E-probes, and the diameter of the current channel was estimated from the erosion spot. The effect of tube length and current amplitude on discharge stability was also determined. The results of the measurements show satisfactory mutual agreement, indicating hydromagnetic instability of a high-current discharge in open tubes.

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USSR

UDC 621.372.057

KALNIBOLOTSKIY, Yu. M., ROGOZA, V. S.

"Synthesis of Electronic RC Circuits Using a System of Differential Equations"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 90-99

Abstract: A system of differential equations is presented for RC circuits which have no degenerations. A method is described for finding the numerical values of particular secondary parameters which appear in the equations as coefficients of the voltages across reactances and across the master source. Taking a general unistor circuit and known particular secondary parameters as a basis, numerical values are found for the conductances between all junctions of the synthesized circuit, and a matrix of the circuit conductances is set up. The conductance matrix enables construction of the configuration of the unknown circuit, and the values of its components are found. In conclusion, a synthesis algorithm is proposed with illustration by an example. Three illustrations, bibliography of four titles.

1/1

USSR

UDC 541.65:547.1'118

ROGOZHIN, S. V., DAVANKOV, V. A., and BELOV, YU. P., Institute of Metal Organic Compounds, Acad. Sc. USSR

"Optically Active Diethyl Ester of  $\alpha$ -Aminobenzylphosphonic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 73, pp 955-956

Abstract: Separation of the racemic mixture of the diethyl ester of  $\alpha$ -aminobenzylphosphonic acid has been achieved by repeated crystallization with debenzoyl-d-tartaric acid taken in a 2:1.25 ratio.

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USSR

UDC 542.91:541.183.1+541.49

ROGOZHIN, S. V., DAVANKOV, V. A., and YAMSKOV, I. A., Institute of Metal  
Organic Compounds, Academy of Sciences USSR

"Synthesis and Properties of an Asymmetric Complexing Sorbent With L-Histidine"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71,  
pp 2325-2327

Abstract: An asymmetric complexing sorbent based on D-methionine bound to the macroreticular polystyrene skeleton through the  $\alpha$ -amino group was synthesized by reacting chloromethylated copolymer with D-methionine methyl ether in a dioxane-methanol mixture at 60°. The reaction lasted 15 hrs, NaI being used as a catalyst. The sorbent showed high selectivity towards the sorption of metals: the pH values for decomplexing of  $\text{Cu}^{2+}$ ,  $\text{Ni}^{2+}$ , and  $\text{Zn}^{2+}$  were 2.35, 6.30 and 6.50 respectively. It has been shown that this new sorbent treated with  $\text{Cu}^{2+}$  or  $\text{Ni}^{2+}$  salts is capable of separating optical isomers of proline, isovaline, isoleucine, allo-threonine and mandelic acid.

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CSO: 1841 -W

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USSR

UDC 541.183.12

~~ROGOZHIN, S. V.~~, DAVANKOV, V. A., and ZHUCHKOVA, L. YA., Institute of  
Element-Organic Compounds, Academy of Sciences USSR

"Asymmetric Anion Exchange Sorbents Based on the Optical Isomers  
of 1-p-Nitrophenyl-2-aminopropanediol-1,3 and its Derivatives"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2,  
Feb 71, pp 459-461

Abstract: Optimal conditions were found for synthesis of asymmetric  
anion exchange resins from chloromethylated styrene copolymer with  
divinylbenzene and (-)-threo-1-p-nitrophenyl-2-aminopropanediol-1,3 (I)  
and some of its derivatives. The synthesis consists of the treatment  
of chloromethylated crosslinked styrene copolymers with (I) in presence  
of NaI catalyst. To increase the basicity of the primary amino  
group, (I) was dimethylated. The anion exchange sorbents obtained  
showed good swelling not only in water but also in organic solvents.  
D-mandelic acid was successfully separated into optical isomers by  
chromatography on (-)-threo-1-p-nitrophenyl-2-dimethylaminopropanediol  
based anion exchange resin.

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1/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--ACYLATION OF AMINES BY ORTHO ESTERS -U-

AUTHOR--(03)-ROGOZHIN, S.V., DAVIDOVICH, YU.A., KORSHAK, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 727

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--AMIDE, HYDROGEN CHLORIDE, AMINO ACID, ESTER, CHLOROETHANE, ETHANOL, IMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1999/1886

STEP NO--UR/0062/70/000/003/0727/0727

CIRC ACCESSION NO--AP0123674

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ORTHO ESTERS WITH AMINE HCL SALTS GIVES AMIDES OF THE CORRESPONDING CARBOXYLIC ACIDS, WITH THE ACYLATION REQUIRING PROPORTIONS OF REACTANTS SO AS TO YIELD 2 MOLES ALC. AND 1 MOLE ALKYL HALIDE. EVIDENTLY THE REACTION PROCEEDS THROUGH FORMATION OF IMIDO ESTER HCL SALTS, WHICH AT 80-110DEGREES ARE CLEAVED TO AMIDE AND ALKYL HALIDE. THIS METHOD IS OF INTEREST FOR PREPN. OF N ACYL DERIVS. OF AMINO ACID ESTERS DIRECTLY FROM AVAILABLE HCL SALTS. THUS HEATING 0.051 MOLE DL,LEUCINE ET ESTER, HCL WITH 0.054 MOLE MEC(OET) SUB3 1 HR AT 75-90DEGREES GAVE 97PERCENT ETCL, 100PERCENT ETOH, AND 10.25 G CRUDE PRODUCT WHICH YIELDED 90PERCENT N,ACETYLLEUCINE ET ESTER, B SUB1 110-12DEGREES. SIMILARLY 0.0412 MOLE BUNH SUB2, HCL AND 0.0433 MOLE HC(OET) SUB3 HEATED 1.5 HR AT 110DEGREES GAVE 98PERCENT ETCL, 100PERCENT ETOH, AND 85PERCENT BUNCHO, B SUB1 77DEGREES. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

172 006 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--SYNTHESIS OF THE ORTHOMETHYL ESTER OF GLYCINE -U-  
AUTHOR--(03)-ROGOZHIN, S.V., DAVIDOVICH, YU.A., KORSHAK, V.V.  
COUNTRY OF INFO--USSR *R*  
SOURCE--IZV. AKADE. NAUK SSSR, SER. KHIM. 1970, (4), 956  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL SYNTHESIS, ESTER, GLYCINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/1301 STEP NO--UR/0062/76/000/004/0956/0956  
CIRC ACCESSION NO--AP0134975  
UNCLASSIFIED



2/2 008

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134975

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. HEATING 21 C (H SUB3 N  
PRIMEPOSITIVE CH SUB2 C, (OME):N PRIMEPOSITIVE H SUB2) 2CL PRIMENEGATIVE  
IN 250 ML MEQH 2 HR AT 40DEGREES, COOLING THE MIXT. TO 00DEGREES, AND  
TREATING IT SLOWLY WITH COMCD. MEONA IN MEQH GAVE 40PERCENT H SUB2NCH  
SUB2 C(OME) SUB3, B SUB10-12 52-50DEGREES, N PRIME20 SUBD 1.4267, D  
PRIME20 1.045 (PURE). FACILITY: INST. ELEMENTUORG. SOEDIN.,  
MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.

AA0045397

Abstracting Service:  
CHEMICAL ABST.

4/70

Ref. Code  
GY0000

90875c Chromatographic method to separate optical isomers of compounds forming complexes with the ions of transition metals. Rogozhin, S. V.; Davankov, V. A. (Institute of Heteroorganic Compounds, Academy of Sciences, U.S.S.R.) Ger. Offen. 1,932,196 (Cl. B 01d), 08 Jan 1970, USSR Appl. 01 Jul 1968; 19 pp. Optical isomers of compds. contg. 1 or more functional groups forming complexes with the ions of transition metals are sepd. by contacting a soln. of the isomers with a layer of asym. ion exchange resin, previously treated with a soln. of a salt of the transition metal. Thus, an ion exchanger is prep'd. as follows; 98.5% styrene and 1.5% divinylbenzene is copolymd. The fraction of the copolymer with a diam. of 0.05-0.10 mm is chloromethylated. The product, with a Cl-content of 20.5%, is treated with L-proline (2.25 mole per mole chloromethyl groups) and NaI (0.30 mole/mole chloromethyl groups) in excess dioxane with methanol (vol. ratio 6:1) for 15 hr at 60°. The substrate is treated with 0.1N CuSO<sub>4</sub> in 0.5N NH<sub>3</sub> (300 ml soln./g substrate), 13 g of the deep-blue substrate is brought into a column (diam. 9 mm, length 500 mm) and washed with 0.5N

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NH<sub>3</sub> and H<sub>2</sub>O to neutrality. Below the main column a smaller column (diam. 9 mm, length 100 mm) packed with 2 g substrate, not treated with the CuSO<sub>4</sub> soln., is mounted. On the first column a soln. contg. 0.5 g DL-proline in 5 ml H<sub>2</sub>O is added and the column washed with distd. H<sub>2</sub>O (10 ml H<sub>2</sub>O/hr). The eluate, giving a pos. reaction with ninhydrin, is evapd. to give 0.25 g L-proline,  $[\alpha]_D^{25} - 80.5^\circ$ . The D-proline is eluted with 100 ml N NH<sub>3</sub> soln. to give 0.25 g D-proline,  $[\alpha]_D^{25} 80.5^\circ$ . The substrate in the column is regenerated by washing with distd. H<sub>2</sub>O to neutrality. After 3 chromatographic cycles, the substrate of the second column is satd. with Cu ions and regenerated with 0.5N HCl. The eluted Cu is resorbed on the substrate of the main column, by bringing the pH of the Cu soln. with NH<sub>3</sub> to pH 6.

Harry De Moor

19780333

USSR

UDC 633.11"324":632.4

NOSENKO, V. V., head of the Seed Breeding Laboratory, and ROGOZHINSKIY, B. I., head of the Plant Protection Laboratory, Cherkasskaya Agricultural Testing Station

"Increased Resistance of Mironovskaya 808 Wheat Strain to Brown Rust"

Moscow, Selektziya i Semenovodstvo, No 1, Jan/Feb 73, pp 53-55

Abstract: Because of its high susceptibility to brown rust, the elite strain Mironovskaya 808 was selectively bred for 6 years. From the 1965 summer crop with an average infection with brown rust of 52%, the least diseased 700 ears were collected and, after further selection in the laboratory, the best seeds were sown in the autumn. This selection, according to the smallest degree of infection with brown rust and the best quality of the ears, was performed each successive year. The summer crop of 1971 was divided into three groups: 1) highly resistant, with a 7.9% incidence of brown rust (44% in the controls) and a yield of 3.96 kg of grain per family; 2) medium resistant, with a 10.8% incidence of brown rust; and 3) poor, which was discarded. In the fall of 1971, 10 ha of land were sown with the superelite of the first two groups.

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- 54 -

ROGOZHNIKIN, P. A.

Acc. Nr: 8P0047380 - Abstr  
- GEOPH

ce: 5/10 Ref. Code:  
UR0065

91956s Comparison of the results of determination of the color of petroleum products on KN-51 and FEKN-56 instruments. Butrim, S. N.; Glebova, A. P.; Ivanyuk, G. E.; Musivata, V. V.; Rogozhkin, P. A. (Volgograd Filial SKB AN SSSR, Volgograd, USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 5-8 (Russ). The precision obtained with the app. FEKN-56 was 5 times as great as that of KN-51 when detg. the color of refined oil. The relation between the results obtained with the 2 app. was expressed by the linear equation  $y = 5.6 + 0.15x$ , where  $x$  is the result obtained with the app. FEKN-56 and  $y$  that with the app. KN-51. The reproducibility errors for the 2 app. are tabulated. The equation is graphically presented. CGJR

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REEL/FRAME  
19790906

USSR

UDC 616.921.5:615.371.372

SHICHANIN, V. V. and ROGOZIN, A. P.

"Efficacy of Influenza Vaccine"

Moscow, Voenno-Meditsinskiy Zhurnal, No 11, 1973, p 47

Abstract: Influenza caused by the A<sub>2</sub>42/72 virus broke out in December 1972 and January 1973 in an army group which had been inoculated three times with A<sub>2</sub> vaccine the preceding two months. In mid-December a number of soldiers arrived from areas where they had not been vaccinated. The first influenza cases were reported a few days later among the newcomers and about a week thereafter in the main group. The sick rate was 424% and 151.5%, i.e., it was 2.8 times lower in those vaccinated. Moreover, the course of the disease was milder, the febrile period shorter, inflammatory phenomena less pronounced, and disability of briefer duration (4.21 versus 5.66 days in the nonvaccinated group).

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USSR

UDC 669.011.7

SAMSONOV, G. V., KOVTUN, V. I., TIMOFEYeva, I. I., ROGOZINSKAYA, A. A., And  
VINITSKIY, A. G., Institute of Problems of Material Science, Academy of  
Sciences Ukrainian SSR, Kiev

"Nature of the High Microhardness of Surfaces Hardened by Friction"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 4, 1973, pp 26-30

Abstract: Strengthening of surfaces by dry sliding friction in a vacuum was studied for refractory metals of groups IV-VIII of the periodic system. Microhardness of the samples rises to a rather high maximum value and then drops off. In addition to microhardness, lattice parameters, mosaic block size, type II distortion, and dislocation density of the metals were determined after undergoing friction. The data on the fine structure and dislocation density in the deformed layers do account for the high degree of metal hardening nor do they explain the variance in metal strengthening at the characteristic pressure equal to 25% of the tensile strength. It was shown that the decisive factor in the strengthening is the electron structure of the metals and the change in this structure during deformation by friction. 6 figures, 3 tables, 21 bibliographic references.

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1/2 . 028 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THE STUDIES OF RADIOPROTECTIVE ACTION OF POLYMER SALT OF CYSTAMINE  
AND SULPHOPROPYL ESTER OF DEXTRANE -U-  
AUTHOR--TRUSHINA, M.N., KHOMYAKOV, K.P., VIRNIK, A.D., ROGOVIN, Z.A.,  
ROGOZKIN, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 195-198  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RADIOPROTECTIVE AGENT, CYSTAMINE, POLYMER, DEXTRAN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/0642 STEP NO--UR/0301/70/016/002/0195/0198  
CIRC ACCESSION NO--AP0102628  
UNCLASSIFIED



2/2 028

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102628

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIOPROTECTIVE ACTION OF SALT LIKE ADDUCT OF CYSTAMINE TO SULPHOPROPYL ESTER OF DEXTRANE HAS BEEN STUDIED. ADDITION OF CYSTAMINE TO POLYMER LEADS TO INCREASE IN RADIO PROTECTIVE EFFECT OF CYSTAMINE AT A SMALL DOSES INJECTED 10-15 MIN BEFORE IRRADIATION. CYSTAMINE AND DEXTRANE COMPLEX IS CHARACTERIZED BY THE PROLONGED PERIOD OF ACTION AS COMPARED TO CYSTAMINE DIHYDROCHLORIDE. THIS ENABLES THE AUTHORS TO ADMINISTRATION THE POLYMER 1 H BEFORE IRRADIATION INSTEAD OF 15 MIN AS IT TAKES PLACE FOR CYSTAMINE DIHYDROCHLORIDE.

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1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--THE STUDIES OF RADIOPROTECTIVE ACTION OF POLYMER SALT OF CYSTAMINE  
AND SULPHOPROPYL ESTER OF DEXTRANE -U-  
AUTHOR--TRUSHINA, M.N., KHOMYAKOV, K.P., VIRNIK, A.O., ROGOVIN, Z.A.,  
ROGOZKIN, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 195-198  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RADIOPROTECTIVE AGENT, CYSTAMINE, POLYMER, DEXTRAN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/0642 STEP NO--UR/0301/70/016/002/0195/0198  
CIRC ACCESSION NO--AP0102628  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102628

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIOPROTECTIVE ACTION OF SALT LIKE ADDUCT OF CYSTAMINE TO SULPHOPROPYL ESTER OF DEXTRANE HAS BEEN STUDIED. ADDITION OF CYSTAMINE TO POLYMER LEADS TO INCREASE IN RADIO PROTECTIVE EFFECT OF CYSTAMINE AT A SMALL DOSES INJECTED 10-15 MIN BEFORE IRRADIATION. CYSTAMINE AND DEXTRANE COMPLEX IS CHARACTERIZED BY THE PROLONGED PERIOD OF ACTION AS COMPARED TO CYSTAMINE DIHYDROCHLORIDE. THIS ENABLES THE AUTHORS TO ADMINISTER THE POLYMER 1 H BEFORE IRRADIATION INSTEAD OF 15 MIN AS IT TAKES PLACE FOR CYSTAMINE DIHYDROCHLORIDE.

UNCLASSIFIED

USSR

UDC 621.385.64

ROGOZHNIKOV, A. I.

"Frequency Characteristics Of Multicavity Magnetron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 64-70 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3A147)

Translation: A model is considered of a magnetron in the form of coupled circuits -- electron and anode. With the coupling between the circuits less than critical, an expression is obtained which makes it possible to evaluate the frequency of a magnetron with respect to a known voltampere characteristic. 8 ref. Summary.

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USSR

UDC 621.385.64

NEKRASOV, L. G., ~~ROGOZHNIKOV, A. L.~~, SMIRNOV, N. S.

"The Problem of the Properties of the Space Charge of a Magnetron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue No 10, pp 132-133 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A166)

Translation: The results which are presented of an experimental investigation of a power pulse magnetron confirm the accepted model of a space charge in the form of an oscillatory circuit. 2 ref. Author's Summary.

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- 72 -

USSR

UDC 627.81.034.001.5(47+57)

ASTRAKHANTSEV, V. I., KUKLIN, A. K., PULYAYEVSKIY, G. M., ROGOZIN, A. A.

"Methods of Studying Bank Processes on the Angar Reservoirs"

Tr. koordinats. soveshchaniy po gidrotekhn. (Works of the Coordinating Meetings on Hydroengineering), No 59, 1970, pp 89-93 (from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 D44)

Translation: Studies of the following problems are continued: a) the study of geological engineering conditions of the shore zone of Lake Baykal, Irkutsk, Bratsk and Ust'-Ilimskiy Reservoirs; b) introduction of stereophotogrammetric methods; c) development and introduction of instruments and methods of complex study of wind-wave conditions.

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- 76 -

USSR

UDC 621.762.001

LIKHOBABIN, V. A., MANTAROSHIN, A. P., PASHKOV, P. O., ROGOZIN, V. D.

"Shock Compacting of Metal Powders"

V sb. Metallovedeniye i prochnost' materialov. T. 3 (Physical Metallurgy and Strength of Materials. Vol 3.-- collection of works), Volgograd, 1971, pp 272-285 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G384)

Translation: A study was made of the laws of shock compacting of metal powders, and the basic parameters determining the mechanical properties of the material obtained are discovered. Eight illustrations, 2 tables, and a 6-entry bibliography.

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- 34 -

1/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--SOLUBILITY OF THORIUM OXALATE IN MIXED SOLUTIONS OF NITRIC AND  
OXALIC ACIDS -U-

AUTHOR--(03)-BRYZGALOVA, R.V., ROGOZIN, YU.M., CHERNITSKAYA, I.V.

COUNTRY OF INFO--USSR .

SOURCE--RADIOKHIMIYA 1970, 12(2), 286-91

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, OXALATE, SOLUBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3005/0111

STEP NO--UR/0186/70/012/002/0286/0291

CIRC ACCESSION NO--AP0132404

UNCLASSIFIED



2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132404

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLYS. OF TH(C SUB2 O SUB4) SUB2 .6H SUB2 O (I) IN 0.5-2.5M HNO SUB3, IN A MIXT. OF M HNO SUB3 AND SMALLER THAN OR EQUAL TO 0.5M H SUB2 C SUB2 O SUB4, AND DETD. AT 25 PLUS OR MINUS 0.2DEGREES. EXCESS I WAS STIRRED IN SOLVENT UNTIL EQUIL. WAS ESTABLISHED (1-2 DAYS) AND THEN THE TH CONC. IN SOLN. WAS DETD. COLORIMETRICALLY. THE SOLY. OF I IN HNO SUB3 INDICATES THAT A CONSIDERABLE AMT. OF TH IN THE SOLNS. IS IN THE FORM OF THE OXALATE COMPLEX OF TH, (TH(C SUB2 O SUB4)) PRIME2 POSITIVE. FROM THE DEPENDENCE OF I SOLY. ON THE CONC. OF C SUB2 O SUB4 PRIME2 NEGATIVE, THE INSTABILITY CONSTS. FOR THE FOLLOWING OXALATE COMPLEXES OF TH WERE CALCD. AS K SUB(TH(C SUB2 O SUB4)) PRIME2 POSITIVE EQUALS 1.6 TIMES 10 PRIME NEGATIVE9 AND K SUB(TH(C SUB2 O SUB4) SUB2) EQUALS 4.3 TIMES 10 PRIME NEGATIVE16. THE VALUES OF THESE CONSTS. AGREE WELL WITH THOSE FOUND BY THE GROUP DISPLACEMENT METHOD.

UNCLASSIFIED

USSR

UDC 541.49:546.841'601.733.1

GREBENSHCHIKOVA, V. I., BRYZGALOVA, R. V., and ROGOZIN, Yu. M.

"Thorium Oxalate Complexes"

Moscow, Radiokhimiya, Vol 12, No 2, 1970, pp 279-285.

Abstract: This study deals with the determination of the composition and instability constants of thorium complexes existing in mixed solutions of nitric and oxalic acids. The method of ligand displacement is used. The use of benzene-2-arsonic acid  $\langle 1\text{-azo-1} \rangle 2\text{-hydroxynaphthalene-3,6-disulfonic acid}$  (thoron) is recommended. The composition of oxalate complexes of thorium in mixed solutions of nitric and oxalic acids was determined. For ratios of total concentrations of oxalic acid and thorium from 1.3 to 13.0 and  $[\text{HNO}_3] = 0.12\text{-}0.5\text{ M}$ , thorium is found in solution mainly as the cationic complex of composition  $[\text{Th}(\text{C}_2\text{O}_4)]^{2+}$ . For a  $[\text{H}_2\text{C}_2\text{O}_4]/\text{C}_{\text{Th}}$  ratio of 13.0-33.0 and the same nitric acid concentration, thorium exists mainly as the neutral complex  $[\text{Th}(\text{C}_2\text{O}_4)_2]^0$ . It was found that instability constants  $K$  of the first and second oxalate complex at  $\mu = 0.5$  are, respectively,  $2.8 \cdot 10^{-9}$  and  $2.7 \cdot 10^{-10}$ .

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- 91 -

1/2 007

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--THORIUM OXALATE COMPLEXES -U-

AUTHOR--(03)--GREBENSHCHIKOVA, V.I., BRYZGALOVA, R.V., ROGOZIN, YU.M.

COUNTRY OF INFO--USSR

SOURCE--RADIO KHIMIYA 1970, 12(2), 279-86

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THORIUM COMPOUND, OXALATE, COMPLEX COMPOUND, LIGAND,  
NAPHTHALENE, SULFONIC ACID, ORGANIC ARSENIC COMPOUND/(U)THORON ARSENIC  
LIGAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3006/1490

STEP NO--UR/0186/70/012/002/0279/0286

CIRC ACCESSION NO--AP0135151

UNCLASSIFIED

2/2 007  
 CIRC ACCESSION NO--AP0135151 UNCLASSIFIED PROCESSING DATE--27NOV70  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPNS. AND INSTABILITY  
 CONSTS. OF OXALATE COMPLEXES OF TH WERE DETD. BY THE METHOD OF LIGAND  
 SUBSTITUTION.  
 1, ((2, ARSONOPHENYL) AZO), 2, HYDROXY, 3, 6, NAPHTHALENEDISULFONIC ACID  
 (THORON) IS RECOMMENDED AS THE SUBSTITUTE LIGAND. THE COMPNS. OF  
 OXALATE COMPLEXES OF TH IN MIXTS. OF HNO SUB3 AND OXALIC ACID WERE DETD.  
 IN SOLNS. WITH (H SUB2 C SUB2, O SUB4)-(TH PRIME4POSITIVE) CONCEN.  
 RATIOS OF 1.3-13.0 AND HNO SUB3 CONCEN. 0.12-0.5MU, THE TH IS PRIMARILY  
 IN THE FORM OF THE COMPLEX (TH(C SUB2 O SUB4)) PRIME2POSITIVE. WITH (H  
 SUB2 C SUB2 O SUB4)-(TH PRIME4POSITIVE) RATIOS OF 13.0-33.0 AND THE SAME  
 HNO SUB3 CONCEN. THE NEUTRAL COMPLEX (TH(C SUB2 O SUB4) SUB2) IS FORMED.  
 THE INSTABILITY CONSTS. OF THE 1ST AND 2ND COMPLEXES AT ION STRENGTH OF  
 0.5 ARE 2.8 TIMES 10 PRIME NEGATIVE9 AND 2.7 TIMES 10 PRIME NEGATIVE16,  
 RESP.

UNCLASSIFIED

USSR

UDC: 546.655+547.466+541.49

ROGOZINA, E. M., POPOV, D. K., and PONIKAROVA, T. M.

"A Study of the Interaction of Radio Isotopes of Rare Earth Elements With Proteins and Amino Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2466-2469

Abstract: The stability of histidine complexes with yttrium and cerium indicates that this amino acid takes an active part in the transfer and accumulation of radioactive isotopes in an organism. To confirm this hypothesis, an experiment was conducted in which a rat was given an intraveinuous injection of an aqueous solution of a histidine complex with yttrium-90, and another rat was injected with an aqueous solution of yttrium chloride. The amount of Y-90 in the organs of the rat injected with the histidine complex was generally 3-5 times greater than in the animal injected with the chloride solution. The resultant data confirm the hypothesis on the active participation of amino acids in the transfer of trace elements by the blood when the element forms a complex compound with an amino acid which is not broken down by chemical conversions in the organism. The ion exchange method with an isotopic tag was

1/2

USSR

ROGOZINA, E. M., et al, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70,  
pp 2466-2469

used for studying enzyme - trace element systems. Pepsin and trypsin were the enzymes studied. It was found that yttrium does not form complexes with these proteins in the acid region. Noticeable binding of yttrium with the enzymes begins at pH 5-6. At a pH of 6-7, both pepsin and trypsin form water-soluble complexes. Maximum yttrium binding is observed at a pH of 7-9. In the case of pepsin, nearly 70% of the yttrium forms complexes with the enzyme.

2/2

Mechanical Properties

USSR

UDC: 621.9.048.4:546.261

LEMESHKO, A. M., ~~ROGOZINSKAYA, A. A.~~, Kiev

"Investigation of Changes in the Surface Layers of Carbides of Refractory Metals After Electric Spark Machining"

Kishinev, Elektronnaya Obrabotka Materialov, No 2(44), 1972, pp 18-22

Abstract: The authors studied changes in the structure, composition, and properties of titanium, niobium, and tungsten carbides after electric spark machining. The specimens were prepared by hot pressing followed by homogenization by annealing. The composition of the carbides was close to stoichiometric. The porosity of the specimens was 2-4%, and grain size was no greater than 40  $\mu$ . Surface layer changes were studied after finishing operations characterized by an energy of up to 0.01 J in a unit pulse. Metallographic studies showed that the microstructure of the surface layer does not undergo any appreciable changes. The surface relief shows increased unevenness and surface destruction with increasingly stringent machining conditions. Microhardness and microbrittleness also change noticeably with an increase in the severity of working conditions. It is concluded that decarbonization of the surface layer leads

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USSR

LEMESHKO, A. M., BOGOZINSKAYA, A. A., Elektronnaya Obrabotka Materialov,  
No 2(44), 1972, pp 18-22

to formation of carbide phases in regions of homogeneity (if these  
regions are extensive), or new phases if the extent of the regions of  
homogeneity is not great. It is shown that machining of hexagonal tung-  
sten carbide results in formation of its cubic modification.

2/2

- 27 -



USSR

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24

ADO, YU. M., ZHURAVLEV, A. A., LOGUNOV, A. A., MYAE, E. A., NAUMOV, A. A., PISAREVSKIY, V. YE., ROGOZINSKIY, V. G., TUSHNETSKAYA, K. Z., SHUKEYLO, I. A., BOYKO, S. N., KOMAR, YE. G., MALYSHEV, I. F., MOZIN, I. V., MONOSZON, N. A., MOZALEVSKIY, I. A., SPEVAKOVA, F. M., STOLOV, A. M., TITOV, V. A., VODOP'YANOV, F. A., KUZ'MIN, A. A., KUZ'MIN, V. F., MINTS, A. L., RUBCHINSKIY, S. M., UVAROV, V. A., GUTNER, B. M., ZALMANZON, V. B., PROKOP'YEV, A. I., and TEMKIN, A. S.

"Some Results of the Overall Adjustment and Start-up of the 70-Gev Proton Synchrotron of the Institute of High-energy Physics"

Moscow, Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

Abstract: The physical part of the plan for the 70-Gev proton synchrotron was executed by the Institute of Theoretical and Experimental Physics. The electromagnet with feed system, the vacuum chamber, and the injection devices were developed at the Scientific Research Institute of Electrophysical Apparatus imeni D. V. Yefremov. The radio-electronic systems for acceleration process control and generation of

1/4

USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

the accelerating field, as well as the radiotechnical measurement and beam observation systems, were developed by the Radiotechnical Institute of the Academy of Sciences USSR. "Tyazhpromelektroproyekt" [State Planning Institute for the Planning of Electrical Equipment for Heavy Industry] designed the general-purpose electrotechnical devices and cable connections. The plan for the construction complex of the accelerator was developed by the State All-Union Planning Institute. The construction of the accelerator was under the general supervision of the State Committee for the Use of Atomic Energy USSR. The adjustment of individual systems and the overall adjustment and start-up of the accelerator were carried out by the Institute of High-energy Physics and the developers of the accelerator systems. The basic beam work was done by the Institute of High-energy Physics with the participation of the Radiotechnical Institute. The construction of the accelerator was begun in 1960, and all the basic construction and assembly work was completed at the beginning of

2/4

- 62 -

USSR

ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

1967. At the initial stage of construction, before the formation of the Institute of High-energy Physics in 1963, the work was coordinated by the Institute of Theoretical and Experimental Physics. The linear accelerator injector was started on 28 July 1967, the operation of the individual systems was adjusted by September 1967, and the physical start-up of the accelerator was accomplished on 14 October.

A description is given of the work done to adjust the annular electromagnet (including the electromagnet cooling and feed systems), the injection system (consisting of matching channel and injection device), the vacuum system, the radioelectronic system (including the accelerating field generation system, the acceleration process control system, and the radiotechnical measurement system), and the beam observation system (which provides for beam observation in the first revolution and during acceleration). In the physical start-up of the accelerator the main efforts were directed towards obtaining accelerated protons of the planned energy, and the problem of obtaining high

3/4

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

intensity of the accelerated proton was not raised.

The article gives a listing of the principal parameters of the proton synchrotron, as well as a schedule of the individual stages of the start-up of the accelerator. Photographs include a view of the part of the ring hall in the beam injection area and a general view of the hall of ignitron rectifiers.

4/4

USSR

UDC 616.155.394-02:617-001.282-085.273.3

GORIZONTOV, P. D., KALYAYEVA, T. V., and ROGOZKIN, V. D.

"Leukocytin, a New Agent for the Treatment of Radiation  
Leukopenia"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya  
Terapiya, No 1, 1971, pp 54-59

Abstract: The recently developed hematopoiesis stimulant leukocytin (containing the glycosidal alkaloid solanine) was administered orally to rabbits (15 ml) and dogs (30 mg) every other day from 1 to 20 days after whole-body X-ray irradiation (450 to 500 r and 400 r, respectively). The preparation diminished the degree of leukopenia and degenerative changes in the spleen and bone marrow, preserved mitosis, and accelerated the regeneration of hematopoietic cells. Leukocytin, approved by the USSR Pharmacological Committee for use in the treatment of acute radiation sickness, is not a specific antiradiation agent and it can apparently be used for leukopenia due to other causes than radiation. The preparation is nontoxic (the authors tested it on themselves).

1/1

- 23 -

172 041

UNCLASSIFIED  
TITLE--EXPERIMENTS IN THE APPLICATION OF PROPHYLACTICS AGAINST RADIATION  
INJURIES UNDER SIMULATED PROLONGED SPACE FLIGHT CONDITIONS -U-  
AUTHOR--(05)-ROGOZKIN, V.D., SBITNEVA, M.F., SHAPIRO, G.A., GVOZDEVA, N.I.,  
ZUKHBAYA, T.M.  
COUNTRY OF INFO--USSR

R  
SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL 4, MAR.-APR. 1970, P.  
20-24  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, PHYSICS

TOPIC TAGS--DOG, GAMMA RADIATION, RADIATION DOSAGE, HEMATOPOIESIS,  
RADIATION INJURY, RADIATION PROPHYLAXIS, ANTIRADIATION DRUG, ADENOSINE  
TRIPHOSPHATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3008/1710

CIRC ACCESSION NO--AP0138683

STEP NO--UR/0453/70/004/000/0020/0024

UNCLASSIFIED

2/2 041

CIRC ACCESSION NO--AP0138683  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. DISCUSSION OF ONE YEAR  
OBSERVATIONS OF RADIATION EFFECTS IN A GROUP OF 54 DOGS EXPOSED TO  
CHRONIC GAMMA RADIATION DOSES OF 75 REM-YEAR WITH ADDITIONAL SOLAR FLARE  
SIMULATING DOSES OF 50 REM GIVEN 3 TIMES DURING THE YEAR TO A TOTAL OF  
225 REM-YEAR. ADENOSINE TRIPHOSPHATE OR AMITETRAVIT (A COMBINATION OF  
VITAMINES C, P, BL, AND B6 WITH TRYPTOPHAN AND HISTIDINE) WERE GIVEN TO  
THE DOGS AS MEDICATION. A NORMALIZING EFFECT OF THESE PREPARATIONS ON  
HEMOPOIESSIS IS ESTABLISHED IN RADIATION EXPOSED DOGS.

UNCLASSIFIED

USSR

UDC 617-001.28-092.9-085.615.357.631-07:616.155.1-007.21-076.5

ROGOZKIN, V. D., and OSTROUMOVA, L. M.

"A Study of the Erythropoietic Effect of Nerobol in Guinea Pigs During Prolonged Irradiation"

Moscow, Byulleten' Eksperimentalnoy Biologii i Meditsiny, No 4, 1970, pp 60-61

Abstract: A group of 118 guinea pigs were irradiated with  $Cs^{137}$  in doses of 576 r at a rate of 0.27 r/min. Fifty three of these animals were pre-treated for three weeks with daily doses of 1 mg/kg of nerobol. A total of fifty three percent of the untreated animals survived; and sixty one percent of the pretreated animals. Blood studies conducted 7, 10, 14, 21 and 30 days after irradiation showed a higher count of erythrocytes and reticulocytes in the pretreated group. It was concluded that nerobol administered before irradiation prevents catabolic disturbances, and that it stimulates the synthesis of hemoglobin after irradiation.

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- 30 -



USSR

UDC: 612.432+612.45].014.482

ROMASHKO, O. O. and ROGOZKIN, V. D.

"Primary Reaction of the Hypophysis-Adrenocortical System to the Action of Ionizing Radiation"

Moscow, Byulleten' eksperimental'noy biologii i meditsiny, No 8, 1972, pp 23-25

Abstract: Dynamics of changes in hormone formation and secretions in the adrenal glands of rats in the initial minutes and hours after irradiation were studied. 280 white male rats were subjected to 14 days of false radiation to accustom them to the experimental conditions. Rats were then divided into four groups: the control group subjected only to false radiation; the second, to a dose of 650 roentgens; the third, to 850; the fourth, to 1000. In the first group, it was found that there was practically no activation of hormone formation and secretions, indicating sufficient adaptation of the specimens to the experimental conditions. In the other three groups there was a two-phase activation of adrenal activity observed in the first few hours after irradiation. The first phase of renal reactions occurred in the first five minutes, while the level of corticosterone increased in the blood as well as the adrenal gland.

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- 78 -

172 037  
UNCLASSIFIED  
TITLE--PROPERTIES OF CRYSTALLINE AMMONIUM NITRITE -U-  
PROCESSING DATE--23OCT70  
AUTHOR--(04)-SHIDLOVSKIY, A.A., POPOVICH, A.S., SHMAGIN, L.F., ROGOZHNIKOV,  
V.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(2), 434-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS, ORDNANCE  
TOPIC TAGS--AMMONIUM NITRITE, COMBUSTION RATE, DETONATION, EXPLOSIVE  
PROPERTY, THERMAL SHOCK  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/0724  
CIRC ACCESSION NO--AP0119631  
STEP NO--UR/0080/70/043/002/0434/0436  
UNCLASSIFIED

272 037  
CIRC ACCESSION NO--AP0119631 UNCLASSIFIED  
ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--23OCT7C  
POINT, SENSITIVITY TO SHOCK AND FRICTION, RATE AND CRIT. DIAM. OF  
COMBUSTION AT ATM. PRESSURE, AND EFFECT ON COMBUSTION RATE OF NH SUB4 NO  
SUB2 AFTER ADDN. OF VARIOUS SUBSTANCES WERE STUDIED ALONG WITH EXPLOSIVE  
PROPERTIES, SUCH AS THE RATE OF CRIT. DIAM. OF DETONATION. CRYST. NH  
SUB4 NO SUB2 IS AN EXPLOSIVE SUBSTANCE OF AV. FORCE (ON THE ORDER OF  
TETRYL), BUT ITS PRACTICAL USE IS HARDLY POSSIBLE DUE TO ITS POOR CHEM.  
STABILITY AND ITS HIGH SENSITIVITY TO MEHC. AND THERMAL SHOCK.  
FACILITY: MOSK. INST. KHIM. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

1/2 015  
UNCLASSIFIED  
TITLE--ADSORPTION OF ARSINE AND PHOSPHINE ON SILICA GEL -U-  
PROCESSING DATE--30OCT70  
AUTHOR--(04)--ZORIN, A.D., DUDOROV, V.YA., ROGOZHNIKOVA, T.S., RYABENKO,  
YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 717-19  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ADSORPTION, ARSINE, SILICA GEL, PHOSPHINIC ACID, VAN DER WAALS  
FORCE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1228  
CIRC ACCESSION NO--AP0123192  
STEP NO--UR/0076/70/044/003/0717/0719  
UNCLASSIFIED

2/2 015  
CIRC ACCESSION NO--AP0123192 UNCLASSIFIED  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADSORPTION OF PH SUB3 AND ASH SUB3  
ON 3 SILICA GEL SAMPLES (PORE DIAM. 8 AND 16 ANGSTROM) WAS STUDIED IN  
THE TEMP. RANGE 20 TO MINUS 80 DEGREES, USING CHROMATOGRAPHIC TECHNIQUES.  
THE EXPTL. RESULTS COULD BE DESCRIBED BY USING THE LANGMUIR ADSORPTION  
ISOTHERM EQUATION. A COMPARISON OF THE HEATS OF ADSORPTION WITH THE  
HEATS OF CONDENSATION REVEALED THAT ASH SUB3 AND PH SUB3 INTERACT WITH  
THE SURFACE OF THE ADSORBENT AS A RESULT OF VAN DER WAALS FORCES.  
FACILITY: NAUCH.-ISSLED. INST. KHIM., GORKI, USSR.

PROCESSING DATE--30OCT70

UNCLASSIFIED

USSR

UDC 577.1:547.965:577.15:612.744

ZIL'BER, M. L., and ROGOZKIN, V. A., Leningrad Scientific Research Institute  
of Physical Education

"Effect of an Amino Acid Mixture on the Activity of DNA-Dependent RNA-  
Polymerase in the Nuclei of Rat Skeletal Muscles and Liver During Muscular  
Activity"

Kiev, Ukrayin'skiy Biokhimichnyy Zhurnal, Vol 44, No 5, Sep/Oct 72, pp 580-582

Abstract: The hypothesis that balanced amino acids administered during muscular activity promote RNA synthesis was tested on male white rats. Balanced mixtures of D- and L-amino acids were administered to rats prior to forced swimming activity. One-time experiments showed that nuclear RNA-polymerase activity increased while the rats were at rest, more so in skeletal muscles than in the liver. The sharp drop in RNA-polymerase activity expected during exercise in normal conditions was prevented. After 10 daily trials with regular amino acid administration the RNA-polymerase activity not only stabilized but increased as well during exercise, indicating a cumulative, adaptive effect of the amino acids. The cytoplasm was shown to be the major element governing the action of amino acids on the enzyme. Thus intensification of RNA biosynthesis in skeletal muscles with amino acid mixtures is possible.

1/1

- 60 -

USSR

ROGOZOVSKIY, O. A.

UDC: 551.596:534.143

"Constructing Optimum Receivers of Polyharmonic Signals With Non-Rayleigh Distribution of the Amplitudes of Harmonics"

Moscow, Tezisy dokl. 3-y Vses. shkoly-seminara po stat. gidroakustike, 1971  
--sbornik (Abstracts of Papers of the Third Soviet-Wide Seminar-School of Statistical Hydroacoustics, 1971--collection of works), 1972, pp 292-296  
(from RZh-Fizika, No 5, May 73, abstract No 5Zh648 by B. P. Sukhin)

Translation: The author discusses problems of designing receivers for signals of the form

$$s(t) = \sum_{i=1}^L A_i \cos(\omega_i t + \phi_i);$$

where  $A_i$  are random amplitudes,  $\phi_i$  are random phases uniformly distributed on the segment  $0-2\pi$ ,  $\omega$  is the frequency of the first harmonic, and  $i$  is the number of the harmonic. Expressions are given for the a posteriori probability density for various distributions of the amplitudes of signal harmonics, including Rayleigh, chi-square, Nakagami, and Maxwellian distri-

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USSR

ROGOZOVSKIY, O. A., Tezisy dokl. 3-y Vses. shkoly-seminara po stat. gidro-akustike, 1971--sbornik, 1972, pp 292-296

butions. The algorithm of rapid Fourier transformation can be advantageously applied in the problem of simultaneous detection and measurement of the frequency of a signal when the receiver design calls for up to 1000 channels.

2/2

- 22 -



033  
UNCLASSIFIED  
TITLE--EFFECT OF CONTINUOUS NEUTRON IRRADIATION ON THE STRUCTURE AND  
PROPERTIES OF MAGNETIC ALLOYS OF THE YUNDK , IRON NICKEL ALUMINIUM  
AUTHOR--(05)--GRINBLAT, YU.N., LYASHCHENKO, B.G., ROGOZYANOV, A.YA.,  
SAKATUNOV, YU.S., SHELKOVNIKOVA, G.YE.  
COUNTRY OF INFO--USSR  
PROCESSING DATE--04DEC70  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 252-255  
DATE PUBLISHED----FEB70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--NEUTRON IRRADIATION, PERMANENT MAGNET MATERIAL, MAGNETIC  
PROPERTY, RESISTIVITY, ALLOY STRUCTURE, COBALT IRON ALLOY, IRON NICKEL  
ALLOY, ALUMINUM CONTAINING ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1676  
CIRC ACCESSION NO--AP0129046  
STEP NO--UR/0126/70/029/002/0252/0255  
UNCLASSIFIED

035

CIRC ACCESSION NO--AP0129046  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. THE EFFECT OF CONTINUOUS NEUTRON  
IRRADIATION (10 PRIME21 N-CM PRIME2) AT TEMP. UP TO 630DEGREESC ON CAST  
AND SINTERED ALLOYS OF THE YUNDK TYPE (FE,NI,AL AND FE,NI,AL,CO) USED  
FOR PERMANENT MAGNETS WAS STUDIED. BECAUSE OF THE RADIATION, SPECIAL  
METHODS WERE REQUIRED FOR MEASURING THE MAGNETIC PROPERTIES AND  
ELECTRICAL RESISTANCE AND FOR STUDYING THE MATERIAL IN THE OPTICAL AND  
ELECTRON MICROSCOPES. NO CHANGES IN THE STRUCTURE OR PROPERTIES  
ATTRIBUTABLE TO THE IRRADIATION WERE OBSERVED; CHANGES OCCURRING ABOVE  
600DEGREESC WERE DUE SOLELY TO THE ORDINARY EFFECTS OF HEAT TREATMENT.

UNCLASSIFIED

AMU44624

R

Soviet Inventions Illustrated, Section II Electrical, Derwent,

UR 0482

2/70

243246 CONDENSER FOR MEASURING DIELECTRIC CONSTANT OF GASES is proposed, incorporating thermal compensation by way of controlled movement of the mercury forming the condenser plate, on heating, so as to correct capacity values. The body 1 is threaded at 2 into a thermostatic chamber; 4,5 are cooling water nipples, 6 for attachment of exhaust pump or inert gas bottles. For testing aggressive gases a quartz ampoule 7 contains mercury, forming the inner condenser plate; the upper part 9 is empty. The outer plate is formed of mercury 10, filled before assembly. Textolite flange 13 and rubber washer 14 seal the top. The stainless steel electrode 17 ends in a steel tubular element 22 screening cavity 9. Its length and the quantity of mercury are chosen so that the capacity of the

AUTHORS: Churin, G. V.; Rogozyanov, A. Ya.; Gromov, V. I.

21

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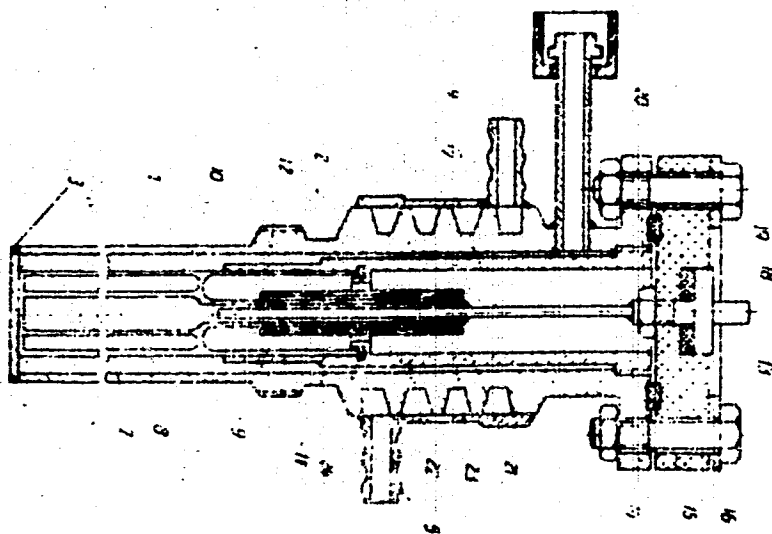
condenser does not change on heating without a test gas. Packings 2, 24 prevent the fall of mercury into the cavity. Cavity 12 serves as a reservoir for the mercury expanding on heating in 10; there is no electrical field at 12, thus no effect on capacity. The penetration of mercury from the inner plate into 9 on heating provides a negative thermal coefficient depending on the geometry of the mercury and steel tube levels, which can be calibrated for each condenser before use. The negative coefficient will then compensate for increasing capacitance on heating, due to linear expansion of the metal components. Thus full stability of the empty condenser on heating is assured.

18.7.66 as 1092235/25-25.G.V.CHURIN et alia.(23.9.69)  
Bul 16/5.5.69. Class 421. Int.Cl.G Oln.

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19771307

AA0044624



5/3

19771308

8

1/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--SYNTHETIC REGULAR POLYTRIPETIDES AND PROTEINS OF THE COLLAGEN

CLASS -U-

AUTHOR--(05)-ANDREYEV, N.S., YESIPOVA, N.G., MILLIONOVA, M.I.,  
ROGULENKOVA, V.A., TUMANYAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(2), 198-205

DATE PUBLISHED-----70

R

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--PEPTIDE, CHEMICAL SYNTHESIS, GLYCINE, AMINO ACID, COLLAGEN, X  
RAY ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/0918

STEP NO--UR/0127/70/015/002/0198/0205

CIRC ACCESSION NO--AP0129983

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129983

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REGULAR SYNTHETIC POLYTRIPETIDES WITH GLYCINE IN THE 1ST AND AMINO OR IMINO ACIDS IN THE 2ND AND 3RD POSITION WERE STUDIED AS MODELS OF STRUCTURAL PECULIARITIES OF COLLAGEN PROTEINS. THE NECESSARY AND SUFFICIENT CONDITION FOR THE EXISTENCE OF COLLAGEN STRUCTURE IS THE OCCURRENCE OF GLYCINE IN THE 1ST AND OF AT LEAST ONE IMINO ACID IN THE 2ND OR 3RD POSITION IN THE TRIPLET. X RAY ANAL. OF CRYST. GLYCINE, IMINO ACID, AMINO ACID POLYMERS VERIFIED THE ROLE OF AGGREGATES OF THIS TYPE IN THE STRUCTURE OF COLLAGEN.  
FACILITY: INST. MOL. BIOL., MOSCOW, USSR.

UNCLASSIFIED

UDC 669.046.5

USSR

ROGULEV, B. A., SHMATKO, G. A., PRONICHKIN, A. A., GOLIKOV, Ye. S.,  
NOVOZHILOV, N. G., BARMOTIN, I. P., SMIRNOV, Yu. D., and CHERNOV,  
G. A.

"Electrical Steel Degassing by Argon Blowing in 100-ton Ladles"  
Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISIS) (Collection of  
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and  
Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 264-265

Translation of Abstract: Data are presented on the use of porous refractory  
inserts for argon blowing in 100-ton ladles. The results of an investigation  
on degassing of ShKh15 steel produced with refining by liquid synthetic slag  
are presented (hydrogen content at blowing decreases by 23% and that of oxygen  
by 55-65%). Attention is paid to increasing the refining effect of synthetic  
slag at argon blowing, resulting in a higher (up to 95%) degree of desulfuri-  
zation; in a rise of metal-slag distribution coefficient (up to 164) with a  
reduction in slag consumption and production cost; and lowering of steel con-  
tamination. Plastic properties of the degassed metal are significantly  
higher than those of the nondegassed metal. 1 figure, 2 tables.



USSR

TASHPULATOV, R. YU., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp 68-73

frequent than under ordinary conditions. Some of the carriers of pathogenic Staphylococci (one of them developed bilateral hydroadenitis and was evacuated from the station for this reason) transmitted them to other members of the group in the form of a latent infection not accompanied by disease. As shown by a study of the four subjects carrying nonpathogenic Staphylococci only, these Staphylococci were gradually eliminated from the upper respiratory passages during sojourn in the Antarctic.

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- 71 -

1/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--QUESTIONS IN THE ORGANIZATION OF THE MEDICAL SERVICING OF THE  
TROOPS AND THE TRAINING AND EDUCATION OF MEDICAL CADRES ORGANIZATION OF  
AUTHOR--KOGUSSKIY, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 12-13  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MEDICAL FACILITY, CLINICAL MEDICINE, MEDICAL EQUIPMENT,  
HEMOGLOBIN, ERYTHROCYTE, URINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REFL/FRAME--3006/0383 STEP NO--UR/0177/70/000/003/0012/0013  
CITE ADDRESS--NO--AP016415  
UNCLASSIFIED

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134160

ABSTRACT/EXTRACT--(U) OP-O- ABSTRACT. IN STUDIES UNDER THE CONDITIONS OF STRICT CLONTEREPIDEMIC CONDITIONS WE ORGANIZED THE WORK OF A CLINICAL LABORATORY AS FOLLOWS. THE TENT IN WHICH THE LABORATORY WAS DEVELOPED WAS DIVIDED INTO TWO PARTS, THE CONTAMINATED AND THE CLEAN. IN THE CONTAMINATED HALF, IN A VESTIBULE, WAS SET A TABLE FOR THE RECEPTION OF THE INVESTIGATED MATERIAL, DELIVERED IN METALLIC CONTAINERS FROM THE SHIPPING POINTS. ON THE TABLE WERE CUVETTES FOR PROCESSING THE BOTTLES AND TEST TUBES CONTAINING THE DELIVERED MATERIAL AND THE ACCOMPANYING DOCUMENTS. IN THE SAME PLACE WERE TABLES FOR BLOOD INVESTIGATIONS (DETERMINATION OF HEMOGLOBIN AND ERYTHROCYTES) AND URINE TESTS (DETERMINATION OF PHYSICO-CHEMICAL PROPERTIES AND PREPARATION OF URINE PRECIPITATE), AND CONTAINERS (PANS, CUVETTES AND PAILS) CONTAINING 5PERCENT LYSOL SOLUTION.

Immunology

UDC 576.858.9.098.396.332.06.083.2

USSR

ROINISHVILI, E. S., Institute of Epidemiology and Microbiology imeni Gamaleya,  
Academy of Medical Sciences USSR

"Role of the Conditions of Infection in Detection of the Infectivity of Phage DNA"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, Jul 70,  
pp 124-129

Abstract: Infectious DNA was isolated from purified concentrated suspensions of dφ 4 phage. The index of infectivity of dφ 4 DNA with respect to lysozyme spheroplasts of E. coli varied with their concentration, the optimum ranging from  $1 \cdot 10^8$  to  $5 \cdot 10^8$  in 1 ml. Deviation from the optimum number of spheroplasts in either direction reduced the possibility of detecting the infectivity of DNA, which was proportional to its concentration at 0.01 μg/ml or less; at higher concentrations this relationship was impaired. DNA activity was manifested in a broad pH range - the optimum is 6.5. The presence of certain salts in the mixture of spheroplasts and DNA was an important factor; 0.01 M MgSO<sub>4</sub> or CaCl<sub>2</sub> was most effective, both for infecting the spheroplasts and for producing phage. Other salts, e.g., NaCl and KCl, were ineffective in this respect. The components of the nutrient medium were also a significant factor; a medium with 0.5 M sucrose, 0.1% glucose, and 1% Czech peptone was most suitable for infection.

1/1

USSR

UDC 621.317.799:539.293:621.315.592

РЧКАХ, А.С., ДЕРИПАСКО, Р.Н.

"Device For Investigation Of Electrical And Photoelectrical Properties Of Longitudinal Semiconductor Structures"

Elektron. tekhnika. Nauchno tekhn. sb. Materialy (Electronic Technology. Scientific-Technical Collection. Materials), 1970, No 3, pp 112-115 (from RZh---Elektronika i yeye primeneniye, No 12, December 1970, Abstract 12B239)

Translation: The properties of longitudinal structures based on photoconductive films require a complex measurement of their parameters. The proposed device makes it possible to measure the parameters of the equivalent circuits of longitudinal film structures and their dependence on d-c voltage and frequency, and the intensity and spectral composition of the light. The derivation is given of working formulas for determining the equivalent capacitance and resistance, and the range of measurable capacitances and resistances is given. 2 ill. 2 ref. Summary.

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UDC 542.65:546.431

USSR

ROKHLENKO, D. A., SOKOL, V. A., KONONOVA, L. I., and BROMBERG, A. V.

"Investigation of the Synthesis and Hot Pressing of  $\text{BaF}_2$  Powders in Air"

Moscow, Neorganicheskiye Materialy, Vol 9, No 11, 1973, pp 1932-1935

Abstract: The relationship between synthesis conditions, hot pressing procedure in air, and quality of an optical ceramic of barium fluoride was investigated.  $\text{BaF}_2$  particles smaller than 0.5 microns possess the maximum activity when they have been fired at about  $500^\circ\text{C}$ . Ceramic elements with a thickness of 3 mm, manufactured from these powders, have a 40% transparency in the visible portion of the spectrum and about 60-80% transparency in the infra-red region with a thickness of 2 to 7 microns. 4 figures, 2 tables, 5 bibliographic references.

1/1

- 24 -

ROKHMENKO, K. D.

JPRS 55341  
6 MAR 72

UDC: 611.73.014.477-064-019

STRUCTURAL AND CYTOCHEMICAL CHANGES IN THE RAT'S SKELETAL MUSCLES ASSOCIATED WITH RESTRICTED MOBILITY

(Article by V.V. Poruchalov, Ye.I. Il'ina-Kakuyeva, V.I. Starostin, K.D. Rokhm-  
enka, Z.F. Savin; Institute of Developmental Biology, USSR Academy of  
Sciences, Moscow; Leningrad, *Arkhiv Anatomi, Gistol, i Embriologii*,  
Russian, No 11, 1971, submitted 19 January 1971, pp 82-91)

The problem of hypokinesia and hypodynamia now goes far beyond the framework of special issues in cosmonautics and clinical practice. In the last decade it has gained broad social significance. Indeed, with the development of technology and mechanization of industry the working and living conditions for large groups of people in developed nations are changing appreciably. There are fewer and fewer applications for the muscular component in man's endeavors.

Diminished muscular activity leads to a large number of changes in systems that do not appear to be related to locomotor functions. There is a change in synthesis of catecholamines, aldosterone, electrolyte balance is impaired, etc. Restricted muscular activity of man related to prolonged immobilization or strict bed rest is always associated with development of atrophy of skeletal muscles and demineralization of bone tissue. Clinicians are well aware of the fact that strict bed rest leads to changes in cardiac function, development of orthostatic hypotension, it is instrumental in development of venous thrombosis, chronic pneumonia, pulmonary embolism, urelithiasis, and many other pathological conditions. We also know that in the case of hypokinesia and hypodynamia there is prevalence of inhibitory processes over excitatory ones in the central nervous system, etc.

Thus, even a mere listing of the effects of limited motor activity shows that it is important to maintain man's motor activity at a specific level in order to keep many of the body's functions within normal range.

The objective of the present investigation was to determine the nature of structural and cytochemical changes in some skeletal muscles of the hind legs as related to different durations of hypokinesia and hypodynamia.

USSR

UDC 681.3.001:518.5

KULEYEV, KH. F., NEMIROVSKIY, M. B., ~~ROKHILIN, E. Z.~~

"One-Level Memory"

Tr. Kazan. aviats. in-ta (Works of Kazan' Aviation Institute), 1970, vyp. 104, pp 64-67 (from RZh-Avtomatika, Telemekhanika i vvchislitel'naya tekhnika, No 2, Feb 71, Abstract No 2B23)

Translation: The most common methods of constructing a single-level memory, distinguished from each other by the automatic memory allocation algorithm and the algorithm for organization of information exchange between the different memory stages based on analysis of use of the stages at preceding points in time, are described. It is pointed out that the known algorithms have a deficiency consisting in the fact that they are based either on use of a large amount of peripheral equipment or on the use of quite large auxiliary sub-routines. A procedure is proposed for organizing a single-level memory using an adaptive priority system requiring minimum equipment expenditures. The program for solution of any problem is subdivided into a series of sequences of commands and numbers called "books". Part of the program is entered in the ready-access memory of the digital computer and is called the "book stack", and the unplaced part of the program is entered in an external memory. The books

1/2

- 68 -



USSR

KULEYEV, KH. F., et al., Tr. Kazan. aviats. in-ta (Works of Kazan' Aviation Institute), 1970, vyp. 104, pp 64-67.

forming a stack are assigned so-called priority numbers beginning at the top of the stack. The high-order part of the addresses of the words making up a given book is called the "label". The memory location where the part of the program with the required word is located is defined by these labels. If the required book is in ready-access memory, then after extraction of it, it is assigned a priority number 1, and the priority numbers of the higher-lying books are incremented by one. If the required book is not present in ready-access memory, then the book with the highest priority number is sent from ready-access memory to the external memory, and the required book replaces it in ready-access memory with assignment of the priority number 1 to it. There is 1 illustration and a 3-entry bibliography.

2/2

USSR

UDC: 621.372.5

ROKHLIN, F. Z.

"Calculating the Coefficients of Equations Which Describe Homogeneous LC Filters"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, vyp. 104, pp 74-79 (from REh-Radiotekhnika, No 1, Jan 71, Abstract No 1A160)

Translation: The author outlines a method for calculating the coefficients of equations which describe homogeneous multiple-element LC filters. The procedure does not require preliminary solution of a system of integro-differential equations with respect to the input and output. Application of the method is demonstrated on examples of an L-shaped low-frequency filter matched at the output, and a T-shaped filter; however, the procedure may also be applied to filters with other types of elements. An algorithm is developed for the method of finding the unknown coefficients, which permits digital computer modeling of the filters being analyzed. H. S.

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USSR

UDC 534-8

KOPETSKIY, CH. V., ROKHLIN, L. I., and SHKIROV, V. S.

"Effect of Fine Structure of Aluminum Single Crystals on the Attenuation of Elastic Ultrasonic Vibrations"

V sb. Mekhanizmy vnutr. treniya v poluprovodn. i metal. materialakh (Internal Friction Mechanisms in Semiconductor and Metallic Materials -- Collection of Works), Moscow, "Nauka," 1972, pp 83-88 (from RZh-Fizika, No 8, Aug 72, Abstract No 8Zh557 from authors' abstract)

Translation: A study was made of the attenuation of elastic vibrations of ultrasonic frequency (10Mhz) in aluminum (99.97%) single crystals as a function of their plastic deformation (1-27%) and as a function of the content of alloying additions of iron and silicon (0.03-0.9 wt.%). It was established that the attenuation coefficient is unaffected by slight degrees of deformation or alloying. With high degrees of deformation (9-27%) the attenuation coefficient increases sharply. Data on ultrasonic attenuation are compared with the results of a study of single-crystal fine structure by the methods of X-ray diffraction topography and electron-microscopy and

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USSR

KOPETSKIY, CH. V., et al., Mekhanizmy vnutr. treniya v poluprovodn. i metal. materialakh, Moscow, "Nauka," 1972, pp 83-88

discussed on the basis of the dislocation theory of attenuation and the theory of ultrasonic scattering by blocks by virtue of elastic anisotropy of the crystal lattice. Bibliography with 14 titles.

2/2

- 18 -

UDC: 533.6.07

USSR

ROMANENKO, G. A.

"Aerodynamic Balance in the A-6 Wind Tunnel"

Nauch. tr. In-t mekh. Mosk. un-ta (Scientific Works. Institute of Mechanics of Moscow University), 1971, No 14, pp 48-70 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B551)

Translation: The paper describes the construction of a six-component aerodynamic lever balance in the A-6 wind tunnel at the Institute of Mechanics of Moscow University. The principal elements of the tunnel are: a frame, a lever suspension with initial loading system, a lever system, six automatic weight elements, a mechanism for changing angles of attack of the model, and a device for metering angles of attack and glide. The balance provides for changing angles of attack over a range of  $-16^\circ$  to  $+44^\circ$  and glide angles up to  $\pm 26^\circ$  and is designed for operation at a maximum flow velocity of up to 50 m/s and at the following maximum model dimensions: wingspan of 2500 mm, fuselage length of 3000 mm, planform wing area of  $1.25 \text{ m}^2$ , fuselage diameter of 0.35 m. B. I. Bakun.

1/1

- 158 -

Magnesium

USSR

UDC 539.4.019.3

ROKHILIN, L. L., and SHKIROV, V. S., Moscow

"The Effect of Plastic Deformation and Heat Treatment on the Damping of Ultrasound in Magnesium Single Crystals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 72, pp 83-86

Abstract: A study was made of the damping of ultrasonic oscillations of 10 Mhz frequency in magnesium single crystals of 99.99% purity, grown by the Bridgman method. The study was made in their initial condition and also after plastic deformation and gradual annealing from room temperature up to 450° C in intervals of 30° C and in one-hour aging periods. It was found that plastic deformation increases the damping coefficient  $\alpha$  and that the character of the dependence of  $\alpha$  on the annealing temperature varies at different annealing stages. Both in the initial single crystals and after mechanical and heat treatment, the values of  $\alpha$  exceeded values of the damping coefficient for found-conducting polycrystal Mg-base alloys by a factor of approximately 20. The damping coefficient decreased without visible microstructural changes in the annealing of deformed single crystals up to 300° C. The change of the ultrasound damping coefficient by further increasing the annealing temperature is related to processes of recrystalliza-

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USSR

ROKHLIN, L. L., and SHKIROV, V. S., Fizika i Khimiya Obrabotki Materialov,  
No 1, Jan-Feb 72, pp 83-86

tion and the growth of grains. Damping data are correlated with data obtained  
by metallographic and x-ray topographic investigations. Three illustrations,  
10 bibliographic references.

2/2

- 19 -

USSR

UDC 534-8

ROKHILIN, L. L., ZUSMAN, L. L.

"Effect of Recovery and Recrystallization on the Attenuation of Ultrasound in Magnesium"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Nonferrous Alloys -- Collection of Works), Moscow, "Nauka", 1971, pp 68-71 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh521)

Translation: The effect of recovery and recrystallization on the damping of ultrasound in polycrystalline magnesium which was subjected to various degrees of cold deformation (from 1 to 50%) was studied. The damping of ultrasound was determined by a pulse method for longitudinal waves, and the measurement frequency was 10 and 20 MHz. Three stages of the measurement occur in this temperature interval: the first is characterized by a drop in the damping of ultrasound upon recovery; the second is characterized by an increase in damping upon recovery; and the third stage is the recrystallization of the process, during which attenuation of ultrasound drops considerably. Depending on the degree of preliminary deformation of the samples, the individual stages of change in the damping coefficient have a different development: in samples deformed by

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USSR

ROKHLIN, L. L., ZUSMAN, L. L.; Struktura i svoystva legk. splavov, Moscow, "Nauka", 1971, pp 68-71

1 and 2% the three stages were noted; in samples deformed by 5 and 10% the damping is relatively little dependent on the annealing temperature; in the most deformed samples (30 and 50%) only recrystallization of the sample was clearly displayed and damping of ultrasound is reduced. Authors abstract.

2/2

- 49 -

USSR

UDC 669.715'5'721+669.715'5'296]:534-8

DRITS, M. Ye., ~~ROKHILIN, L. L.~~, BOCHVAR, N. R., GUR'YEV, I. I., and  
DZYUBENKO, M. I., All-Union Institute of Light Alloys

"Sound Conduction of Al+20% Zn Alloy With Additions of Magnesium and  
Zirconium as a Function of Conditions of Heat and Pressure Treatment"

Tekhnol. legkikh splavov. Nauch.-tekhn. byul. VILSa (Technology of Light  
Alloys. Scientific and Technical Bulletin of All-Union Institute of Light  
Alloys), 1971, No 4, pp 9-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract  
No 11727 by I. Yeroshenkova)

Translation: The authors studied the influence of homogenization, as well  
as pressing temperature, annealing, and aging on the ultrasound attenuation  
coefficient in alloys of Al 20% Zn and 0.1-0.3% Zr or 0.1-0.2% Mg. Optimum  
conditions of heat and pressure treatment to assure lowest values of the  
ultrasound attenuation coefficient in the alloys were determined: for  
Al-Zn-Mg alloy homogenization of ingots at 500°, pressure treatment at  
400°, annealing at 350° with subsequent cooling, resulting in no signifi-  
cant decomposition of the solid solution of Al, and natural aging; for  
Al-Zn-Zr alloy homogenization of ingots at 500° and pressure treatment at  
450-500°. Four illustrations. Bibliography with four titles.  
1/1

Magnesium

UDC 534.833.53

USSR

ROKHLIN, L. L., Institute of Metallurgy imeni A. A. Baykov

"Effect of Significant Mishmetal Content on the Acoustical Properties of Magnesium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, No 2, Vol 31, Feb 71, pp 311-319

Abstract: Alloys of magnesium with mishmetal were prepared which contained differing amounts of the second phase crystals (up to 54% by volume). The acoustical properties of these alloys (coefficient of damping and ultrasonic velocity in longitudinal and transverse waves) were measured. Measurements of the ultrasonic velocity permitted determination of the modulus of elasticity of the phase rich in mishmetal and were used for evaluating the correctness of theoretical scattering calculations. Alloys for study were melted in an electric furnace under standard flux VI-2. Pouring alloys was accomplished by means of directed crystallization in the mold, submerged in water. As charge materials, 99.9% magnesium and mishmetal were used. The mishmetal consisted mainly of cerium which was 70-82% of the total amount of rare-earth metals used; lanthanum and neodymium being the other rare earths. Ingots of the alloys were hot extruded at 400°C into rods 18 mm in diameter with a reduction in area of 87%. The effect of significant contents of mishmetal (up to

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USSR

ROKHLIN, L. L., Sverdlovsk, Fizika Metallov i Metallovedeniye, No 2, Vol 31, Feb 71, pp 311-319

24%) on the coefficient of damping and ultrasonic velocity was studied and it was shown that the damping coefficient of the mishmetal-enriched alloys was the same as for alloys containing mishmetal which did not exceed solubility in the solid state. On the basis of measuring ultrasonic velocity and density the modulus of elasticity for mishmetal-enriched phase was calculated and for the enriched phase the theoretical calculation of ultrasonic damping was checked in the eutectic alloy as to the scattering of crystals of the second phase. The calculated values were found to be close to experiment values. 4 figures, 10 bibliographical references.

2/2

USSR

UDC 539.5

DRITS, M. Ye., ~~ROKHLIN, L. L.~~, SHFREDIN, V. V., SHULVGA, Yu. N., Moscow

"Influence of Certain Factors on Dissipation of Energy During Elastic Oscillations in Magnesium Alloys"

Problemy Prochnosti, No 10, 1971, pp 62-66.

Abstract: This work presents the result of a study of the damping ability of one class of structural materials broadly used in technology -- magnesium alloys. The interest in the damping ability of magnesium alloys results from the fact that magnesium and certain of its alloys are characterized by high attenuation of elastic oscillations. The damping ability of alloys was determined using a torsional pendulum with solid circular specimens with a gauge section diameter of 6 mm and a length of 50 mm with oscillations with an initial amplitude of  $3.3 \cdot 10^{-4}$  at the surface of the specimen. The damping ability was characterized by the logarithmic oscillation decrement. The studies resulted in production of a new alloy with good damping qualities and increased strength.

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USSR

UDC 534.321.9

ROKHLIN, L. L. Institute of Metallurgy Imeni Baykov of the Academy of Sciences of the USSR

"On Accuracy in Measuring the Damping Coefficient of Ultrasonic Sound by the Contact Echo Impulse Method"

Moscow, Zavodskaya Laboratoriya, Volume 7, 1971, pp 789-792

Abstract: In addition to the usually investigated factors such as diffraction, non-parallel sample faces and non-monochromatic ultra sound impulses, damping can also be influenced by the correspondence between the ultra sound frequency and the natural resonating frequency of the piezo crystal and the force with which the crystal is clamped to the sample. Both factors have a significant effect. Measurements of the attenuation of 10 megahertz waves were found to have an error of  $\pm 0.5\%$  when the apparatus was left untouched, but 2 - 10% when the sample was removed from the test apparatus and replaced, with the higher errors coming in samples with lower coefficients of absorption. Frequency was also significant. At frequencies somewhat below the natural resonant frequency of the crystal, attenuation values remained linear as a function of sample length; at frequencies near or somewhat above the natural resonant frequency, the change  $1/2$

USSR

Rokhlin, L. L., Moscow, Zavodskaya Laboratoriya, Volume 7, 1971, pp 789-792

in attenuation with length is less regular.

Both these variations are related to loss of acoustic energy from the sample back into the crystal. To minimize these losses and the resulting distortion, the test frequency should be approximately 0.9 times the crystal resonant frequency and the pressure with which the crystal is held to the sample should be minimal.

2/2

- 122 -

USSR

ROKHLIN, L. L., ZUSMAN, L. L., and BOCHVAR, N. R.

"Light Alloys with Specific Acoustic Properties"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,  
pp 199-202, resume

Translation: Data are presented on the effect of alloying and structural factors (grain size, degree of cold hardening, and the decomposition degree of supersaturated solid solution) on the ultrasound damping factor of magnesium and lithium alloys. The effect of these factors on both kinds of alloys is compared. Acoustic properties of some alloys of optimum composition for use as materials in sound-conducting devices are presented. Six figures, eight bibliographic references.

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- 67 -



USSR

UDC 620.173.311.6:609.711

BRITS, M. Ye., ROKHIN, L. L., SHEREDIN, V. V., and SHUL'GA, Yu. N., Institute of Metallurgy imeni A. A. Baykov

"Magnesium Alloys With High Damping Capacity"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 70, pp 48-51

Abstract: This study discusses the basic properties of alloys of the system Mg-Zr, considers the effect of alloying and mechanical and heat treatment on their damping ability, and compares their properties with those of other alloys. The data indicate that magnesium has the same damping ability as iron, lead, and zinc, and considerably surpasses that of aluminum, copper, titanium, and niobium. The Mg-Zr alloy has the same damping ability as pure magnesium. The mechanical properties and damping decrement of Mg-Zr alloys depend very little on the casting conditions. The annealing of cast Mg-Zr alloys has no effect on their mechanical properties. The damping decrement during annealing of cast Mg-Zr alloys remains stable. The pressure treatment of Mg-Zr alloys reduces their damping ability. Reduction in the damping decrement during introduction of strengthening additives into magnesium or Mg-Zr alloys can be explained by the fact that they retard the process of twinning. The same is true of the damping decrement of deformed alloys during recrystallization and grain growth. 1/1

Acc. Nr: **AP0047168**

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,  
Vol 70, Nr 2, pp 235-241

THE DIFFERENTIAL DIAGNOSIS OF SCHIZOPHRENIA  
FROM PSYCHOPATHY AND PSYCHOPATHLIKE STATES

L. L. Rokhlin

The paper deals with problems of differentiating schizophrenia, psychopathy and psychopathlike states of different genesis (including social). The personal observations of the author are related to a group of young patients (from 18—25), mainly girls with psychopathic and psychopathlike behaviour, whose behaviour was characterized by addiction, not serious criminal acts, suicidal attempts, different forms of hypochondriacal states and dysmorphophobia. The diagnosis of these patients gave big difficulties and the mistakes were mainly of an erroneous diagnosis of schizophrenia and psychopathy. Some of the patients with pathological, but socially conditioned behaviour could not be considered in the framework of these routine diagnoses. Discussing these problems in general, the author stresses that the psychiatrist should take into consideration changes occurring in modern society under the influence

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of the scientific technical revolution, different social and social-psychological changes. The author attributes such phenomena acting upon the psych and health as automatization, mechanization, a tremendous loading on the perception of information (due to mass communication), the process of socialization of man, factors of acceleration and retardation, etc. It is in the opinion of the author that the consideration of social psychology and microsocial analysis, especially in the light of clinical conclusions, may be of aid to the psychiatrist.

7/2

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USSR  
Aluminum and Its Alloys

UDC 669.017:620.18

USSR

BOCHVAR, N. R., DRITS, M. Ye., and ROKHLIN, L. L., Moscow

"Some Properties of Extruded Aluminum Eutectic Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 54-59

Abstract: A study was made to evaluate the possibility of producing fibrous structures in aluminum eutectic alloys by means of extrusion and to determine their mechanical and physical properties. Two groups of alloys were studied. In the first group the volume percentage of the strengthening phase was small (5 to 15%): 1--Al-Al<sub>3</sub>Fe, 2--Al-Al<sub>6</sub>Mn, 3--Al-Al<sub>3</sub>Ni, 4--Al-Al<sub>4</sub>Ce, 5--Al-Si and 6--Al-Mg<sub>2</sub>Si; in the second group the strengthening phase amounted to almost 50%: 7--Al-Al<sub>2</sub>Cu, 8--Al-Al<sub>3</sub>Mg<sub>2</sub>; 9--Al-MgZn<sub>2</sub> and 10--Al-S(Al<sub>2</sub>CuMg). It was established that the strengthening phase in the Al-Al<sub>3</sub>Mg<sub>2</sub> alloy has a fibrous structure as a result of hot extrusion and annealing, while the strengthening phase in the other investigated systems is crushed after extrusion. The highest strength properties at room temperature in the hot-extruded state are achieved in alloys containing approximately equal volumes of the strengthening phase and matrix (Al-Al<sub>3</sub>Mg<sub>2</sub>, Al-Al<sub>2</sub>Cu, Al-MgZn<sub>2</sub>, and Al-Al<sub>2</sub>CuMg), at a very low value of relative elongation. At 400°C these alloys exhibit superelasticity. The coefficient of ultrasonic damping for

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USSR

BOCHVAR, N. R., et al., Fizika i Khimiya Obrabotki Materialov, No 5,  
Sep-Oct 72, pp 54-59

eutectic aluminum alloys is low in the hot-extruded condition and deterior-  
ates with annealing. 2 figures, 2 tables, 16 bibliographic references.

2/2

- 1 -

USSR

UDC: 534.2

MERKULOV, L. G., ROKHLIN, S. I.

"Diffraction of Lamb Waves by a Crack in an Elastic Plate"

Tr. Taganrog radiotekhn. in-ta (Works of Taganrog Radio Engineering Institute), 1973, vyp. 34, pp 3-11 (from RZh-Fizika, No 5, May 73, abstract No 5Zh564 by A. Kolomiytsev)

Translation: The authors solve problems on the diffraction of Lamb waves by a finite crack of arbitrary length  $2l$  and by an asymmetrically located, semi-infinite crack. The crack is located on an unbounded elastic-isotropic plate of thickness  $2h$ . The shift potentials of the Lamb waves diffracted by the crack are determined. The spectrum of permissible wave numbers  $k_i$  leads to two infinite systems of algebraic equations relative to the unknowns  $X_j^+(k_i)$  and  $Y_j^+(k_i)$  associated with the transformants of the stresses on a section. It is established that the resultant systems are quasiregular under the condition  $l/h > \frac{1}{4}$ . It is found how  $X_j^+(k_i)$  and  $Y_j^+(k_i)$  are related to the coefficients of transmission and reflection. For diffraction of Lamb waves by an asymmetric crack, a system of functional equations is found relative to the transformants of stresses and shift discontinuities on a section. It is found that the corresponding scalar problems have a solution if the shear modulus and some potential are assumed to be identically equal to zero.

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UDC 534-8

USSR

MERKULOV, L. G., ROKHLIN, S. I.

"Lamb Wave Diffraction in a Section of Finite Length"

Izv. Leningr. elektrotekhn. in-ta (News of the Leningrad Electrotechnical Institute), 1972, vyp. 102, pp 132-137 (from RZh-Fizika, No 12, Dec 72, Abstract No 12Zh588)

Translation: A study was made of the Lamb wave diffraction in a section of finite length located in the plane of symmetry of an elastic plate. The surface of the plate and the section were assumed free of stresses. The method of integral conversion was used to reduce the problem to two generalized functional equations. The last Wiener-Hopf procedures lead to singular integral equations for the transformant of elastic stresses with known analytical regions. The integral equations are converted to infinite algebraic systems with exponentially decreasing coefficients which permit a numerical solution. As an example, the case of incidence on the section of a symmetric wave was investigated; coefficients were found which define the transformation of the incident wave into transmitted and reflected waves.

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- 34 -

USSR

UDC: 518.9

LIVSHITS, I. M., ROKHLIN, V. I., SPRYGINA-SLIK, S. D.

"On a Minimax Solution of One Problem of Distributing Resources"

V sb. Issled. Operatsiy. Vyp. 2 (Operations Research--collection of works. No 2), Moscow, 1971, pp 42-57 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V773)

Translation: The authors find the value of the minimax and the strategy which realizes it for the problem of distribution of offensive and defensive facilities among several sections for the case where the gain of the attacker on an individual section is proportional to the probability of a breach in the defense on this section by at least one of the attack facilities, and is equal to the value of the section if such a breach becomes certain. I. Fomin.

1/1



USSR

UDC 542.91:547.431.4+547.241

KHUNYANTS, I. L., URUSHADZE, M. V., and ROKHLIN, YE. M., Institute of  
Organoelemental Compounds, Academy of Sciences SSSR

"Interaction of Alkylperfluoroisobutenyl Ethers with Triethyl Phosphite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71,  
pp 1365-1366

Abstract: The interaction of nucleophiles with alkylperfluoroisobutenyl  
ethers results in replacement of the vinyl atom of fluorine or in dealkylation,  
the reaction going in one or the other direction according to the reactant.  
The authors found that triethyl phosphite, unlike other previously studied  
nucleophiles, is capable of reacting with the above ethers in both directions.

1/1

REEL # 26  
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